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EXAMINER	
HOLLERAN, ANNE L	

ART UNIT	PAPER NUMBER
1643	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/743,684	GILL, PARKASH S.	
	Examiner	Art Unit	
	Anne Holleran	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6,7,10,11,17-34 and 36-52* is/are pending in the application.

4a) Of the above claim(s) *24-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6,7,10,11,17-23,29-34 and 36-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 5/11/2005 is acknowledged. Claims 1-5, 8, 9, 12-16, and 35 were canceled.

Claims 24-28, drawn to non-elected inventions, are withdrawn from consideration.

Claims 6, 7, 10, 11, 17-23, 29-34 and 36-52 are examined on the merits.

2. References C1-C6 and C8 of the IDS filed 2/3/2003 have been considered. However, applicant must submit a new PTO 1449 listing these references, because the PTO 1449 corresponding to the IDS filed 2/3/2003 is not present in the file.

Claim Rejections Withdrawn:

Double Patenting

3. The rejection of claims 1-23, 29-34 and 36-52 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 and 29-39 of U.S. Patent No. 6,500,431 is withdrawn in view of the Terminal Disclaimer filed on 10/27/2004. The terminal disclaimer filed on 10/27/2004 disclaiming the terminal portion of any patent granted on this application that would extend beyond the expiration date of U.S. Patent 6,500,431 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Objections

4. The objection to claims 7-9 and 11-22 under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim is withdrawn in view of the amendment to the claims.

5. The objection to claims 38 and 39 under 37 CFR 1.75(b), as being duplicate claims is withdrawn in view of the amendment.

Claim Rejections - 35 USC § 112

6. The rejection of claims 29-36 and 45-52 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in view of the amendment.

7. The rejection of claims 1-3, 6-8, 10, 29-34, and 36-52 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn in view of the amendment to the claims, canceling claims 1-3, and 8 and amending claims 29-34 and claims 36-52. However, see New Grounds of Rejection.

8. The rejection of claim 5 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn in view of the amendment canceling the claim.

9. The rejection of claims 1, 2, 5 and 11 under 35 U.S.C. 102(e) as being anticipated by Dean (U.S. Patent 5,888,474; issued Mar. 30, 1999, 1999; effective filing date Jul. 11, 1994) is withdrawn in view of the amendment.

10. The rejection of claims 1, 5 and 10 under 35 U.S.C. 102(e) as being anticipated by Tripp (U.S. Patent 5,639,876; issued Jun. 17, 1997; effective filing date Aug. 19, 1993) is withdrawn in view of the amendment.

11. The rejection of claims 1, 5 and 10 under 35 U.S.C. 102(e) as being anticipated by Luster (U.S. Patent 6,403,782; issued Jun. 11, 2002; effective filing date Sep. 1, 1995) is withdrawn in view of the amendment.

12. The rejection of claims 1 and 10 under 35 U.S.C. 102(b) as being anticipated by Stevens (Stevens, R.L. et al. Biochemistry 32: 4051-4059, 1993) is withdrawn in view of the amendment.

13. The rejection of claims 29, 30, 33-35, 37, 40, and 41 under 35 U.S.C. 102(e) as being anticipated by Katz (U.S. Patent 5,716,614); issued Feb. 10 1998; effective filing date Aug. 5, 1994) as evidenced by Stevens (supra) is withdrawn in view of the amendment.

Claim Rejections Maintained:

Claim Rejections - 35 USC § 112

14. Claim 7 remains rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for polypeptides comprising the sequence DVCQD (SEQ ID NO: 28), where the polypeptide has anti-angiogenic acitivity, does not reasonably provide enablement for polypeptides comprising the sequence DXCXD, where X is any amino acid. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. This rejection is maintained for the reasons of record.

Claim 7 is dawn to an isolated polypeptide comprising an amino acid sequence substantially identical to that shown in SEQ ID NO: 1 beginning at position 7, wherein the polypeptide has anti-angiogenic activity. The specification defines the phrase "substantially identical" on page 12, as at least 60% identity of residues in two aligned sequences, where the alignment is for maximum correspondence over a domain of the protein. Therefore, the polypeptides of claim 7 encompass polypeptides that do not comprise the sequence DVCQD, because the identity may be as little as 60%, and because the definition in the specification appears to indicate that the identity does not have to be over the entire sequence of either of the two compared sequences. As indicated in the previous Office action (mailed 5/27/2004), the teachings of the specification are limited to demonstrating that polypeptides having DVCQD have anti-angiogenic activity, and also appears to show that substitutions within the DVCQD sequence cannot be made predictably. The specification fails to indicate what other parts of SEQ ID NO: 1 (which is a 524 amino acid polypeptide) provide anti-angiogenic activity. Therefore,

the claim amounts to claiming a product by a functional limitation with no correlation to a structural feature.

In view of the breadth of the claims and the lack of correlation between structural features of SEQ ID NO: 1 (other than the presence of the sequence DVCQD) and anti-angiogenic activity, and in view of the very broad definition provided for the phrase "substantially identical", the scope of claim 7 is not commensurate in scope with the scope of what is enabled by the specification.

Claim Rejections - 35 USC § 102

15. Claims 6, 11, 17-23 remain rejected under 35 U.S.C. 102(e) as being anticipated by Hammerstedt (U.S. Patent 5,910,568; issued June 8, 1999; effective filing date Jan. 11, 1996; cited in the IDS).

Claim 11 is drawn to a polypeptide that comprises R-XDVCQD-R'. R and R' are defined. R may be as many as 5 amino acids in length, and R' may be from 0-59. Dependent claim 6 is drawn to polypeptides that specifically bind to an antibody raised to Saposin B. Claims 17-22 are drawn to polypeptides where one of 5 amino acids of the R' group is defined. Claim 23 is drawn to polypeptide comprising SEQ ID NO: 19, which is a sequence encompassed by R-XDVCQD-R'.

Applicants assert that claim 11 has been amended to more clearly point out that which applicant considers as the invention. However, claim 11 is drawn to polypeptide *comprising* R-XDVCQD-R'. Therefore, there is no size limitation on the polypeptides encompassed by claim 11.

Hammerstedt teaches SEQ ID NO: 15, which comprises the sequence DVCQD and which is 80 amino acids in length and has the specific amino acids in the positions indicated in claims 11-22, and further comprises SEQ ID NO: 19. Because Hammerstedt's sequence encompasses SEQ ID NO: 19, and because SEQ ID NO: 19 is the N-terminal 11 amino acids of Saposin B, it would be reasonable to assume that an antibody preparation that binds to Saposin B would encompass an antibody that binds to Hammerstedt's SEQ ID NO: 15. Thus, SEQ ID NO: 15 is a polypeptide that would be bound by an antibody that was raised against Saposin B. Therefore, Hammerstedt teaches a polypeptide that is within the scope of the claimed inventions.

New Grounds of Rejection:

16. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection. The basis for this rejection is that the amendment to claim 7 introduces new matter into the specification because, as currently amended, claim 7 is drawn to a genus of polypeptides that was not originally contemplated.

Claim 7 is drawn to an isolated polypeptide comprising an amino acid sequence substantially identical to that shown in SEQ ID NO: 1 beginning at position 7 wherein said polypeptide has antiangiogenic activity. In the originally filed specification, the genus that was contemplated was that of a polypeptide comprising an amino acid sequence substantially identical to that shown in SEQ ID NO: 1 beginning at position 7 (see page 3, lines 10-12). There is no contemplation of a subgenus of a polypeptide that comprises an amino acid sequence

substantially identical to that shown in SEQ ID NO: 1 beginning at position 7 defined by the functional limitation of having antiangiogenic activity. Furthermore, there are no teachings in the specification that SEQ ID NO: 1 is a polypeptide that has antiangiogenic activity. SEQ ID NO: 1 is defined in the specification as the amino acid sequence of prosaposin, which is precursor molecule for Saposin B (which starts at position 195 of SEQ ID NO: 1). Thus, there does not seem to be a reasonable basis to assume that SEQ ID NO: 1 has antiangiogenic activity, because "pro" forms of proteins are often inactive forms of a protein. Therefore, it does not appear that applicant was in possession of the newly defined genus encompassed by amended claim 7.

17. Claims 6, 10, 11, 17-23, 29-34 and 36-52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The basis for this rejection is that claim 11 lacks adequate written description for the genus of polypeptides encompassed by claim 11. Additionally, claim 11 introduces new matter into the specification because of the addition of the phrases describing Aa_1-Aa_5, where any of Aa_1-Aa_5 may be defined as any amino acid depending on whether one or more of Aa_1-Aa_5 is a specific amino acid as indicated in the body of the claim.

(a)Lack of Written Description for genus

Claim 11 is drawn to an isolated polypeptide comprising the sequence R-XDVCQD-R', where R is selected from the group Aa_1-Aa_2-Aa_3-Aa_4-Aa_5, Aa_2-Aa_3-Aa_4-Aa_5, Aa_3-Aa_4-Aa_5, Aa_4-

Aa_5, and Aa_5, wherein Aa_1 is glutamine or a conservative substitution thereof; Aa_2 is proline or a conservative substitution thereof; Aa_3 is lysine or a conservative substitution thereof; Aa_4 is aspartic acid or a conservative substitution thereof; Aa_5 is asparagine or a conservative substitution thereof. Claims 18-22 contains similar language with respect to further defining R'.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is for purposes of the 'written description' inquiry, "*whatever is now claimed*" (see page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is now claimed." (See Vas-Cath at page 1116.)

The skilled artisan cannot envision the detailed chemical structure of the encompassed "polypeptides comprising R-XDVCQD-R' ", where the R and R' groups have "conservative substitutions". The specification defines "conservative substitution" (page 10, line 31-32) as a change in the amino acid composition of a polypeptide that does not substantially alter the polypeptide's activity. In the case of polypeptides comprising the sequence R-XDVCQD-R', it is not clear what activity to test for, because claim 11 does not recite an activity. Furthermore, by tying the definition to changes in functional activity, the structures are defined by function and not by chemical composition. Also, even if "antiangiogenic activity" is assumed, the specification fails to teach any substitutions to R-XDVCQD-R' that would not substantially alter activity of the polypeptide. Therefore, the specification fails to provide a correlation between the structures of most of the species encompassed by claim 11 and any biological activity or antiangiogenic activity. Without teaching a correlation between structure and function, the

specification fails provide an adequate written description of the claimed genus. Therefore, conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of manufacturing or testing the claimed process. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for making or testing it. One cannot describe what one has not conceived. See Fiddes v. Baird, 30 USPQ2d 1481, 1483. In Fiddes v. Baird, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 U.S.C. 112, is severable from its enablement provision. (See page 1115).

(b)New Matter

Claim 11, as currently amended, introduces new matter into the specification, because neither originally filed claim 11 nor the specification contains the recitation that the R group may be defined as selected from the group consisting of Aa_1-Aa_2-Aa_3-Aa_4-Aa_5, Aa_2-Aa_3-Aa_4-Aa_5, Aa_3-Aa_4-Aa_5, Aa_4-Aa_5, and Aa_5, wherein Aa_1 is glutamine or a conservative substitution thereof, or if one or more of Aa_2, Aa_3, Aa_4 and Aa_5 is a specific amino acid indicated herein, any amino acid; Aa_2 is proline or a conservative substitution thereof or if one or more of Aa_1, Aa_3, Aa_4 and Aa_5 is a specific amino acid indicated herein, any amino acid; Aa_3 is lysine or a conservative substitution thereof or if one or more of Aa_1, Aa_2, Aa_4 and Aa_5 is a specific amino acid indicated herein, any amino acid; Aa_4 is aspartic acid or a conservative substitution thereof, or if one or more of Aa_1, Aa_2, Aa_3 and Aa_5 is a specific amino acid indicated herein, any amino acid; Aa_5 is asparagine or a conservative substitution thereof, or if one or more of Aa_1, Aa_2, Aa_3 and Aa_4 is a specific amino acid indicated herein, any amino acid. What was originally contemplated was

Aa_1, Aa_2, Aa_3, Aa_4 and Aa_5 may be either glutamine, proline, lysine, aspartic acid, and asparagines, respectively, or a conservative substitution thereof. There was no contemplation that if any one of Aa_1, Aa_2, Aa_3, Aa_4 and Aa_5 was one of the named amino acids that the other residues may be any amino acid. In applicant's response to the previous Office action, there was no indication where support for this new limitation could be found in the specification.

18. Claims 6, 10, 11,17-23, 29-34 and 37-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 is indefinite because the phrase "if one or more of Aa_1, Aa_2, Aa_3, Aa_4 [and/or] Aa_5 is a specific amino acid indicated herein". It is not clear if the "a specific amino acid indicated herein" is the one named specifically for any of Aa_1, Aa_2, Aa_3, Aa_4 and Aa_5 or if any of the named amino acids may appear in any position.

19. Claims 11, 17-23, 40 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by O'Brien (WO 95/03821; published 9 February 1995).

O'Brien teaches a polypeptide with the amino acid sequence of SEQ ID NO: 3, which is an amino acid sequence that comprises R-XDVCQD-R'. Because the instant claims indicate that the R group may be made up conservative substitutions of certain amino acids, and because "conservative substitutions" is defined functionally in the specification as a substitution that maintains peptide function (and claim 11 is not limited by any biological function), the R group may be made up of any amino acid. O'Brien's SEQ ID NO: 3 contains the residues specified for

R' in claims 17-23 and comprises SEQ ID NO: 19 of claim 23. O'Brien's SEQ ID NO: 3 encompasses the fusion proteins of claims 40 and 41, because O'Brien's SEQ ID NO: 3 encompasses Saposin B (taught in the specification to have antiangiogenic activity) and encompasses the rest of prosaposin, which enables SEQ ID NO: 3 to bind to glycosphingolipids such as gangliosides, cerebrosides and sulfatides (see page 3, lines 1-3). Therefore, O'Brien's SEQ ID NO: 3 encompasses an isolated polypeptide of claim 11 and a cell targeting moiety that is a protein. Therefore, O'Brien teaches a polypeptide or a fusion protein that is the same as that claimed.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the Office should be directed to Anne Holleran, Ph.D. whose telephone number is (571) 272-0833. Examiner Holleran can normally be reached Monday through Friday, 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Helms, can be reached at (571) 272-0832.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at telephone number (703) 571-1600.

Anne L. Holleran
Patent Examiner
July 24, 2005

ALANA M. HARRIS, PH.D.
PRIMARY EXAMINER